"Looking Forward at Our Assets"

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Calpine Maximo Team

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Topics

- Using safety stock for preparedness, visibility, and budgeting
- Risk matrix on work orders
- Intracompany (site-to-site) inventory transfers
- Creating a MOC or TAP record from a WO
- Automating account deactivations
- Simplification of workflow reassignments and empowering users
- Capsheet overview, preferred items & refresh
- WO Work List – enabling mass editing

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Using Safety Stock for preparedness, visibility & budgeting

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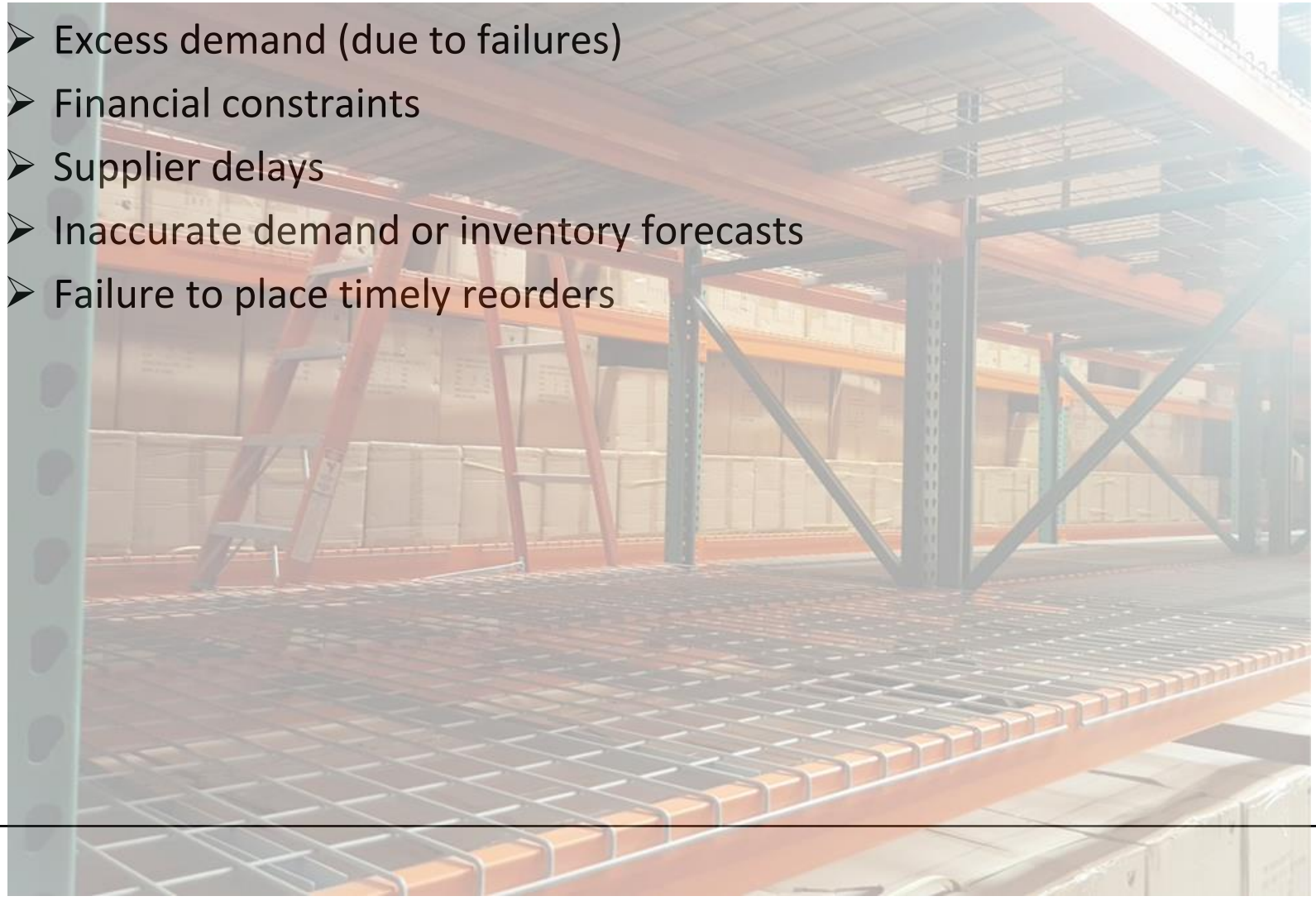
Safety Stock - Defined

Two kinds of Inventory Stock

- Cycle stock, the inventory that is expected to be consumed within a given period
- Safety stock, a buffer amount that accounts for uncertainties such as:
  - Excess demand (due to failures)
  - Financial constraints
  - Supplier delays
  - Inaccurate demand or inventory forecasts
  - Failure to place timely reorders



Safety Stock - Problems

REWORK REQUIRED

- Unplanned events (failures) happen
- Repurposing an asset intended for a scheduled outage to today's unplanned failure means rework is needed
- Budgets don't grow easily
- Ignoring the problems we expected didn't work either

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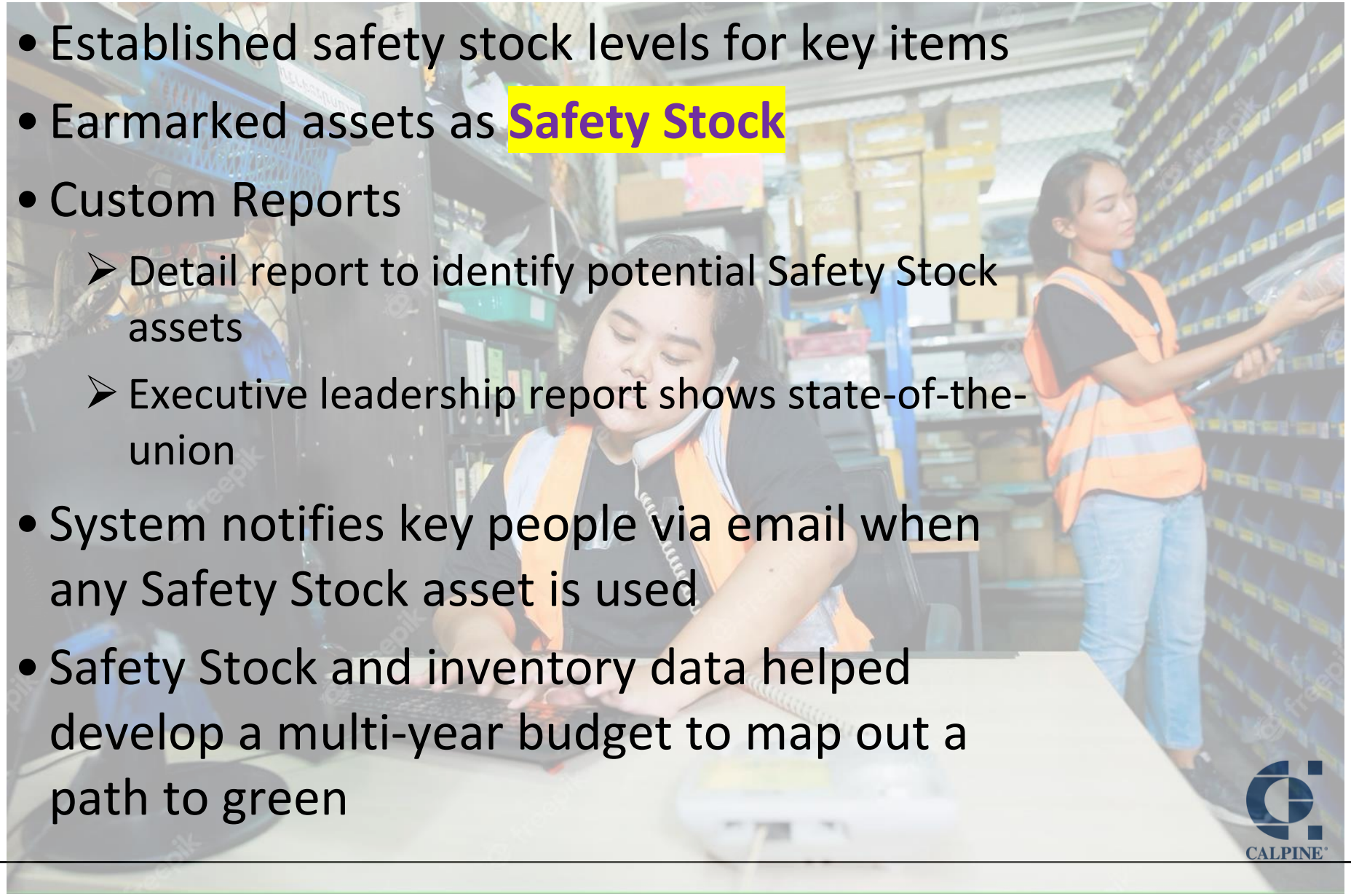
Safety Stock – Steps Taken



- Established safety stock levels for key items
- Earmarked assets as **Safety Stock**
- Custom Reports
  - Detail report to identify potential Safety Stock assets
  - Executive leadership report shows state-of-the-union
- System notifies key people via email when any Safety Stock asset is used
- Safety Stock and inventory data helped develop a multi-year budget to map out a path to green

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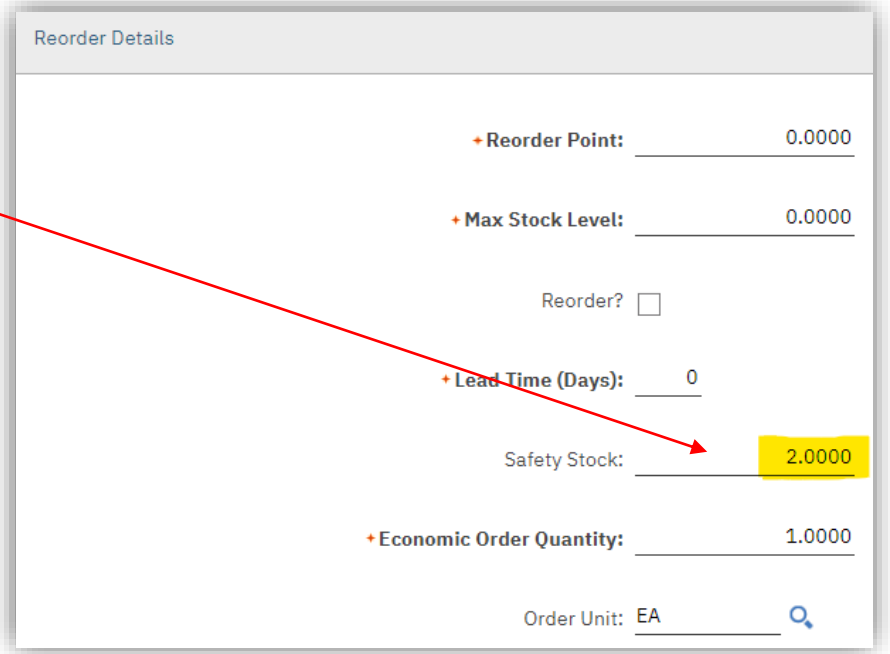
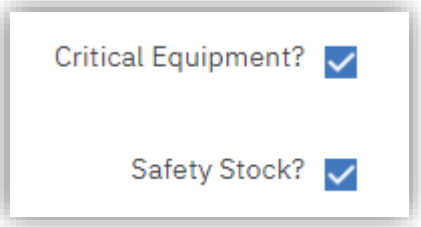
Safety Stock

1. Inventory → Reorder Details tab – to set Safety Stock level



2. Asset → Asset tab – Earmark an individual asset as Safety Stock here (added field)



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Safety Stock

SS Summary Report shows items, SS requirements, and current count of Safety Stock. This is good for management discussions.

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Safety Stock Summary Report

Technolog	ProfileID	Item #	Item Description	Required SS	Available S	Shortag	Percentag
501F-D2	SWT			4	0	4	0.00%
501F-D2	SWT			2	2	0	100.00%
501F-D2.DF42	SW			1	1	0	100.00%
501F-D2.DF42	SW			1	1	0	100.00%
501F-D3	SW			2	1	1	50.00%
501F-D3	SW			2	0	2	0.00%
501F-D3	SW_			2	0	2	0.00%

SS Details Report gives detail on each asset, plus helps identify which assets *could* be marked as Safety Stock if we are short. Good for asset managers.

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Safety Stock Details Report

Item # 740056	Description: SEG		Shortage: 4
Class 2 Alternates			
Item #			Asset Status
			READY
Item # 721	Description: BAS		Shortage: 4
Class 1 Alt			
			Asset Status
			NEW
Class 2 Alt			
			Asset Status
			READY
			READY
			READY
			READY
			READY
			READY
Potential A			
			Asset Status
			NEW

Risk Matrix for Work Orders

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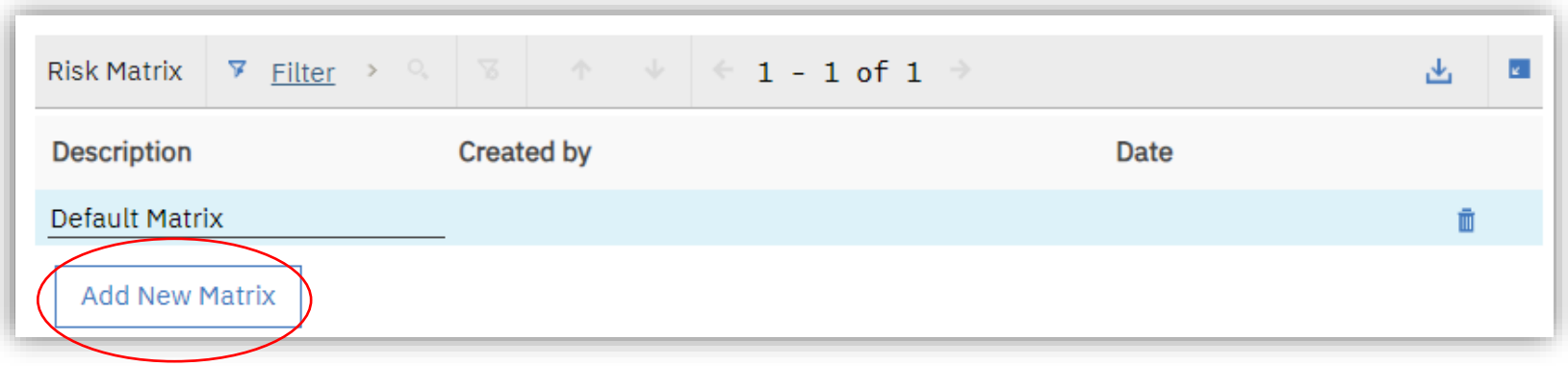
Risk Matrix

- New “Risk Matrix” tab on Work Orders and PM’s
- When a PM generates a WO, the Risk Matrix details copy over
- A Risk Matrix is required for all Work Orders at a plant
- If the assessed risk is too high, a Safety Plan and Safety Checklist is required
- Added the ability to create multiple Risk Matrices for a Work Order, since different crews have different risks as they work on different things.



Risk Matrix

Risk Guidance Matrix - Check all that apply

Risk Guidance Matrix Score: 3

(If Risk Guidance Matrix Score is 2 or greater, a Safe Work Plan is required)

	High Risk Any Yes Reply=Work Plan Req [2 Pts Each]	Medium Risk Two Yes Replies=Work Plan Req [1 Pt Each]	Low Risk Work Plan Not Req [0 Pts Each]
Personnel Safety	Yes? ☐ Work presents high risk to personnel safety or a potential for hidden results or negative consequences	Yes? ☐ Work presents medium to low risk to personnel safety or a medium to low risk of hidden results or negative consequences	Yes? ☑ Work presents low risk to personnel safety or low risk for hidden results or negative consequences
Environmental Risk	Yes? ☐ Work presents high risk of an environmental spill, emission violation, release, or exceedance	Yes? ☑ Work presents medium to low risk of an environmental spill, emission violation, release or exceedance	Yes? ☐ Work presents low risk of an environmental spill, emission violation, release or exceedance
Equipment Damage	Yes? ☐ Work presents high risk of equipment damage that would result in lost production	Yes? ☐ Work presents medium to low risk of equipment damage that would result in lost production	Yes? ☑ Work presents low risk of equipment damage that would result in lost production
Complexity/Frequency of the work being performed	Yes? ☐ Complex task or performed infrequently (>6 mo) / Involves diagnostics / Complex Scope for more than one work group	Yes? ☐ Simple task, performed frequently that involves further diagnostics	Yes? ☑ Simple task, performed frequently / defined scope
Technical Control Points/Measurements or Settings	Yes? ☐ Requires detailed instructions for disassembly and reassembly to hold critical dimensions or settings	Yes? ☑ Industry / Universal maintenance experience allows for work to be safely executed	Yes? ☐ Procedures and instructions are not required
Risk of Unit Trip or Run Back	Yes? ☐ Work presents high risk of a single failure or error causing a unit trip or run back	Yes? ☑ Work presents medium risk of a single failure or error causing a unit trip or run back	Yes? ☐ Work presents low risk of a single failure or error causing a unit trip or run back
Reliance of Craft Skill	Yes? ☐ High Reliance on the Skill of Craft	Yes? ☐ Some reliance on the Skill of Craft, more repetitive type work	Yes? ☑ Basic skill set required to complete the task

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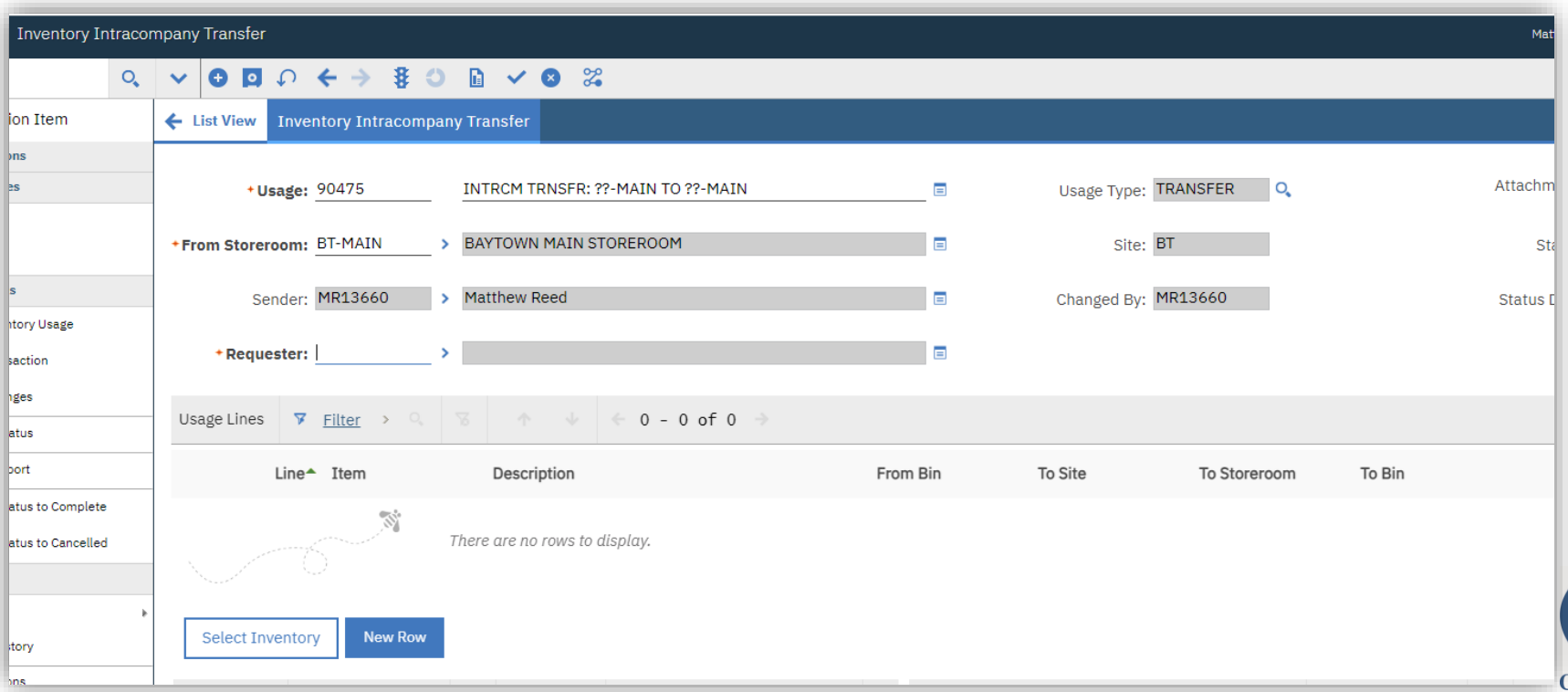
Intracompany (site-to-site) inventory transfers

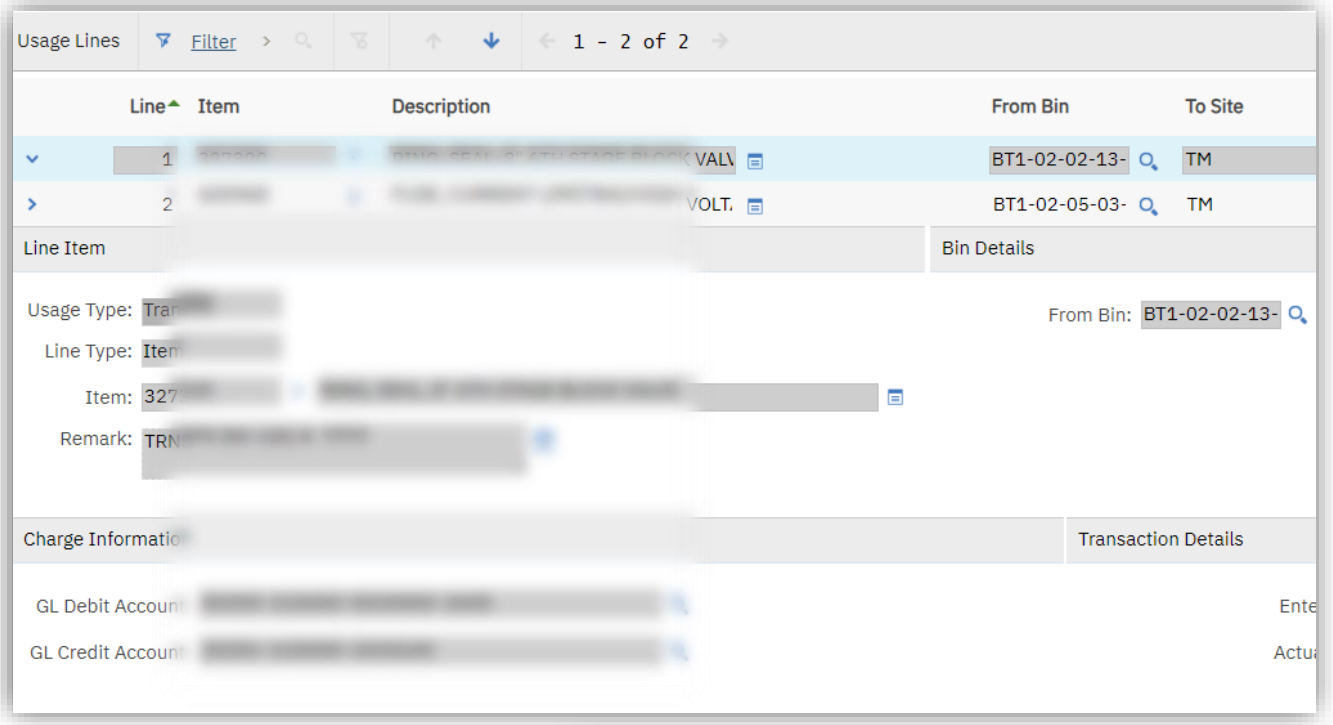
Intracompany Inventory Site-to-Site Transfers

Old way: Supply chain created the transfer record in Maximo.

New way: sites are autonomous. They create the record and start workflow. Then via workflow, they approve, provide ASN, adjust actual delivered quantity if necessary, specify a bin, and complete the transfer record.



Intracompany Inventory Site-to-Site Transfers



Line information for a transfer record

Report showing site-to-site transfers.

From Storeloc	Description	To Storeloc
TM-MAIN	MOUNT, DBL, THRD ADAPTER, CUTSFORTH	HD-MAIN
SP-MAIN	SENSOR, PRES, 1200 PSI, HIGH TEMP, DYTRAN	HM-MAIN
BZ-MAIN	VALVE,SOLENOID, REXROTH	PA-MAIN
HM-MAIN	TACHOMETER, DIGITAL PROCESS	DE-MAIN
FV-MAIN	KIT,REBUILD, PUMP, DUEL HEAD	PA-MAIN
DK-MAIN	KIT,REBUILD, PUMP, SNGL HD, I SERIES GAS ANLZRS	PA-MAIN
DK-MAIN	PUMP, VACUUM, 24VDC, DUEL HEAD	PA-MAIN
DK-MAIN	LUBRICANT,SPCL PUR, 0.8 KG, HIGH TEMP FOZ, GREASE, CARTRIDGE	BT-MAIN
DK-MAIN	KIT, SOFT PARTS, VITON, 4 IN, BOLTED BONNET,	BT-MAIN

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Intracompany Inventory Site-to-Site Transfers

By empowering our sites to transfer inventory to another site, without Supply Chain's assistance, we:

- ensure the accounting is accurate for each transfer
- make the best use of our fleetwide inventory
- allow plants to beat supplier lead times
- decrease the workload on Supply Chain
- give plants another option to help decrease inventory levels where it makes sense

One unique consideration for this app is that we excluded some sites from using the app due to ownership differences/limitations.

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Creating a MOC or TAP record from a WO

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MOC (Management of Change)

When something at a plant changes the way we operate, the change is documented in an MOC record. That record is routed through workflow, so that it can be reviewed, worked on, and approved by Plant management, Engineering, etc.

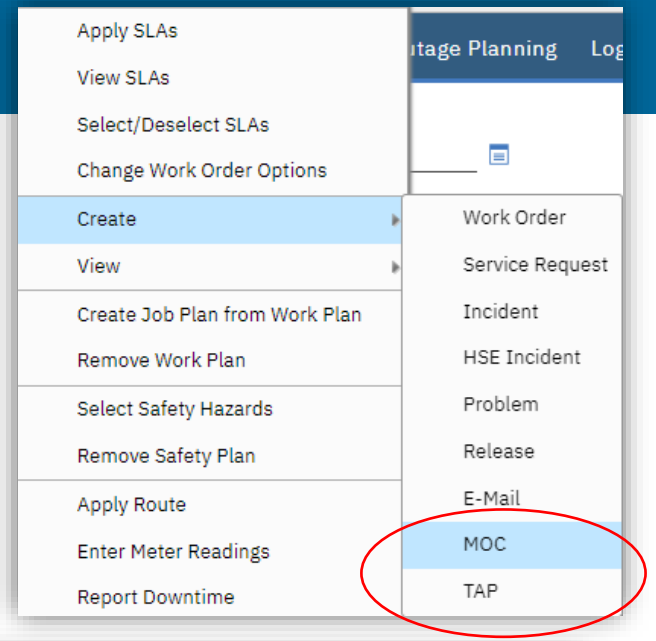
TAP (Temporary Alteration Permit)

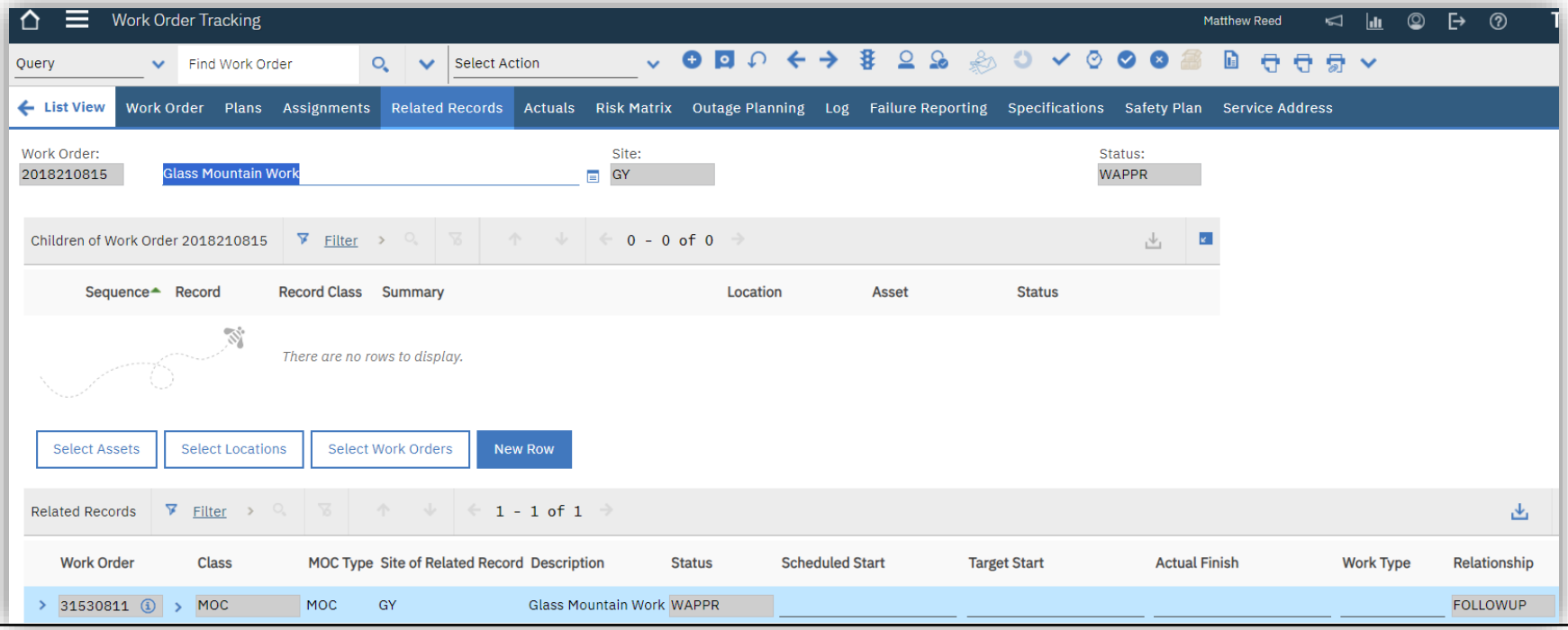
When something changes at a plant that requires a temporary alteration in procedures, that is recorded as a TAP record. It is reviewed, worked on, and approved. In addition, it stays open until the situation is permanently resolved, so it is not forgotten.

MOC & TAP records

When looking at the work order that resulted in the change, the user goes to Select Action → Create → MOC or TAP

This creates a relationship between the work order and the MOC/TAP. In this way, we can see a more complete picture.





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Automating account deactivations

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Account Deactivations - Before Automation

Account deactivations have always been easy. All a Maximo administrator has to do is:

1. deactivate the person record, deactivate the account, remove security groups, remove the person from all person groups, remove any work assignments, deactivate the labor record, find out where this person had open workflow assignments, ask the person's former supervisor who should get them, ask the former supervisor 3 or 4 more times over the next three months, replace them on any Job Plans they're on with someone new (ask the supervisor – they'll know), remove them from any open work order labor, remove them as asset owner or owner of any service requests (ask the supervisor who to replace them with – they usually respond right away, since they're always at their desk), remove them from any safety incident records and replace them with the right person (ask the supervisor who that should be, because they can't think of anything better to do than answer your emails right away), remove them from any Problem tickets and replace them with (you guessed it – ask the supervisor), follow up with the supervisor 2-6 more times for each record type.

2. Give up waiting on answers and close the ticket.

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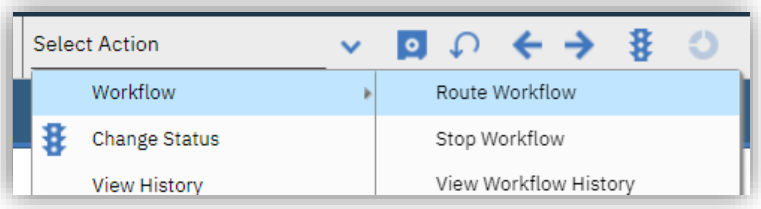
Account Deactivations - With Automation

After a long development cycle, account deactivations are ready to be handled with workflow.

1. The Maximo administrator routes workflow on the User record and notes the ticket number
2. Maximo admin closes the ticket



3. Workflow removes everything it needs to, sets status to INACTIVE where it needs to, and it creates a workflow assignment for the supervisor
4. The supervisor fills in 3 names about reassignments when they know who the right person is for each record type
5. The supervisor routes workflow to complete his/her part
6. Workflow reassigns everything per the supervisor's instructions and emails details of each reassignment

One challenge that was handling people who had multiple site access.

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Account Deactivations – What's Next

We will soon adapt our auto termination package to handle moves/job changes.

When a person moves from one site to another, reassignments can be done in an automated way.

Similarly, if someone gets a new promotion, their old assignments can be easily reassigned.

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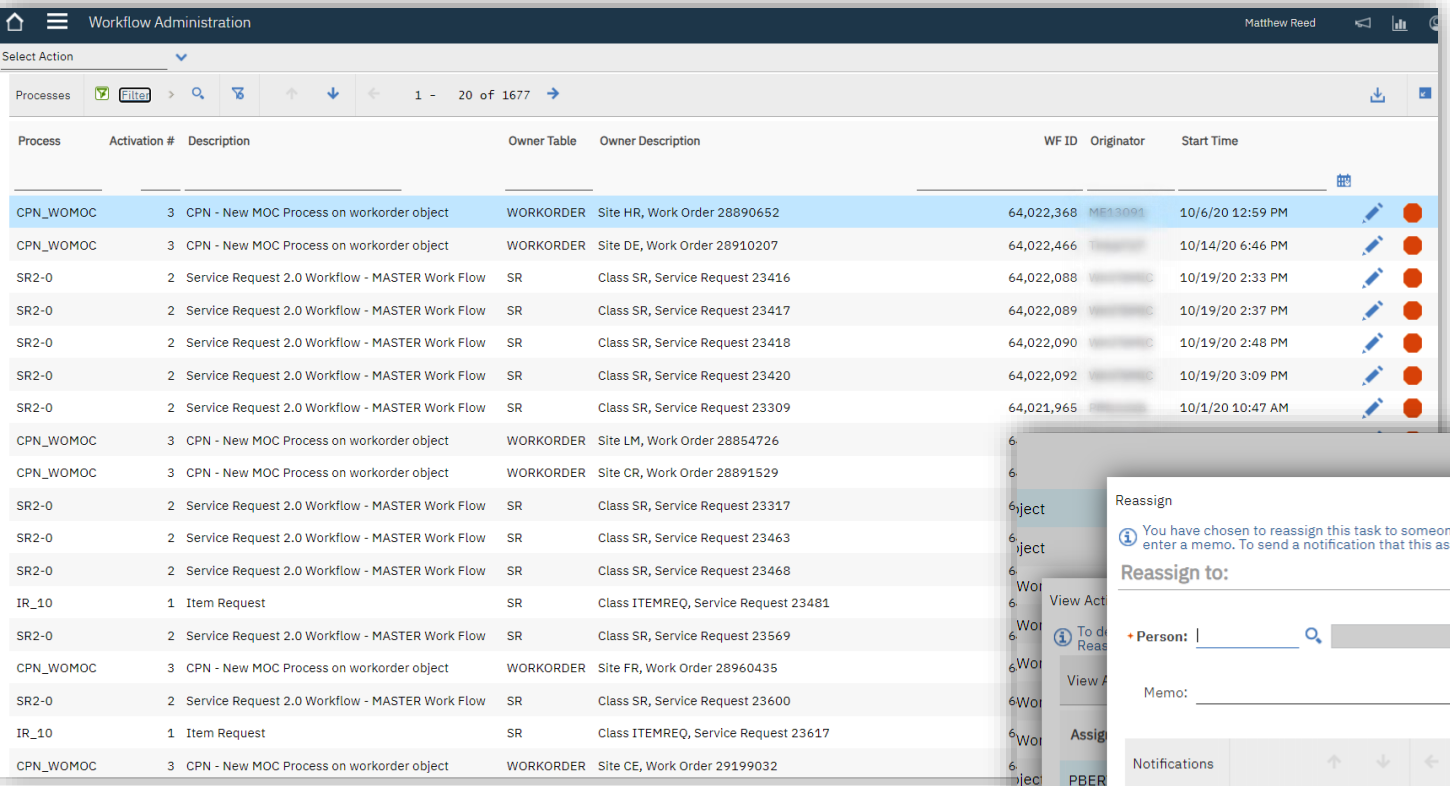
Simplification of workflow reassignments and empowering users

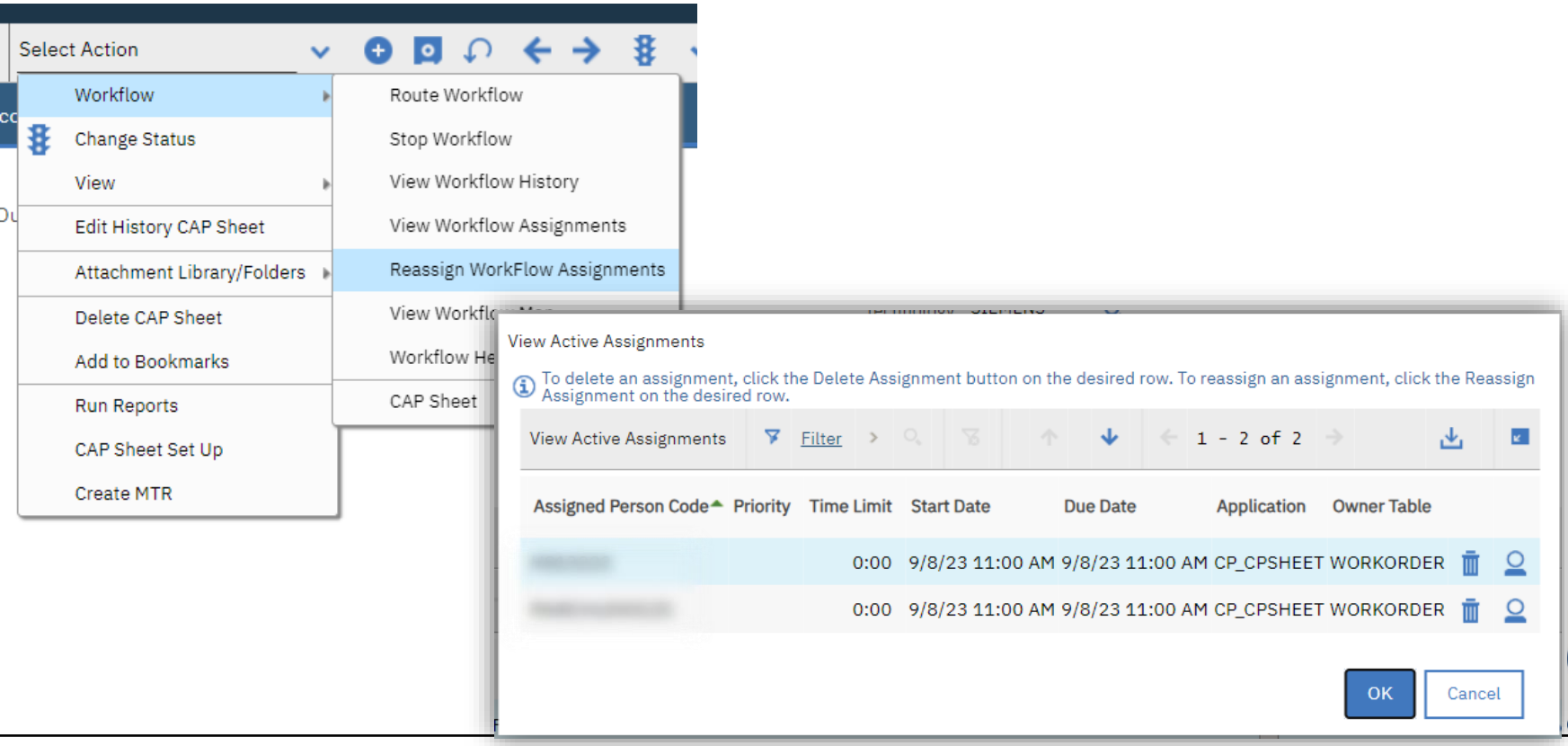
Workflow Reassignments – Old Way

1. Users contact Maximo team to request a workflow reassignment
2. Maximo team (painfully) searches for that record, then reassigns it.



Workflow Reassignments – New Way

- Maximo Team created a new action that uses the same reassignment method as the original Workflow Administration app does
- Now, users with appropriate security may go to Select Action → Workflow → "Reassign Workflow Assignments" to do it themselves



Capsheet overview, preferred items & refresh

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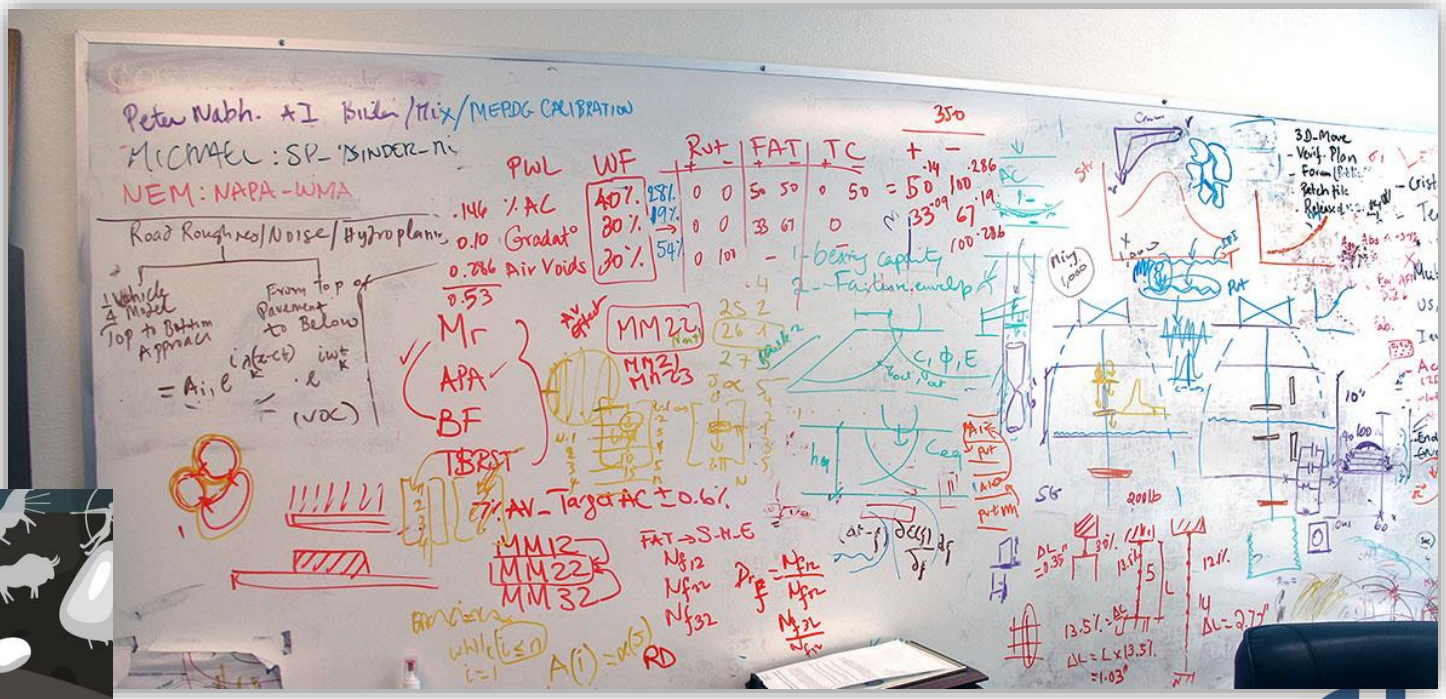
Capsheet Overview

- Help Outage Services team plan for future outages.
  - Manage over 100k internal turbine asset fleet wide
  - Apply Asset Reservations
  - Identify preferred parts for usage
  - Define ownership of outage process

Old Method:



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Capsheet Overview

Nowadays:

CAP Sheet: 30186686

Outage Number:

Outage Type:

Technology:

GT Number:

Start Date: 10/8/23 2:11 PM

End Date:

MWO Proposed Start:

MWO: - MWO

In-Service Date: 11/6/23

Outage Engineer 1: NATIONSS

Outage Engineer 2:

Current Workflow Assignee: Ray Haz

Combustion Section

Dis-Assembly (Assets Outbound from Unit) 1 - 6 of 6

Asset	Serial #	Description	EOH	ESS	SELECT INSPECT?	Ship To	Comments
			148,871.36	1,409.00			
			74,503.49	572.00			
			103,115.43	1,081.00			
		EMENS	83,756.03	1,282.00			
			53,604.17	625.00			
			148,871.36	1,409.00			

New Row

Assembly (Assets Inbound to Unit) 1 - 6 of 6

Show Profile?	Item Number	Location	Status	Asset	Serial #	Description
	742057	FS1-16-07-05-01 NEW		11412585		BASKET,COMBUSTION, W501F D1-D3, GEN
	72			80		NOZZLE,FUEL, W501F D1-D3, PILOT NON-I
	71			540		NOZZLE,FUEL, W501F D1-D3, SUPPORT H
	71			87		PIECE,TRANSITION, W501F ALL, 32K, PSM

Turbine Section

Dis-Assembly (Assets Outbound from Unit) 1 - 24 of 24

Asset	Serial #	Description	EOH	ESS	Ship To	SELECT INSPECT?	Comment
			56,021.12	593.00			
			34,570.89	337.00			
			56,021.12	593.00			
			55,216.03	809.00			
			34,570.89	337.00			
			34,570.89	337.00			
			59,850.52	1,220.00			

Assembly (Assets Inbound to Unit) 1 - 24 of 24

Show Profile?	Item Number	Location	Status	Asset	Serial #	Description
				11289564		BLADE,TURB, W5
				9		BLADE,TURB, W5
				7		BLADE,TURB, W5
				9		VANE,TURB, W50
				8		VANE,TURB, W50
	737127	FS-APG	READY	11003620		VANE,TURB, W50

Much more civilized…

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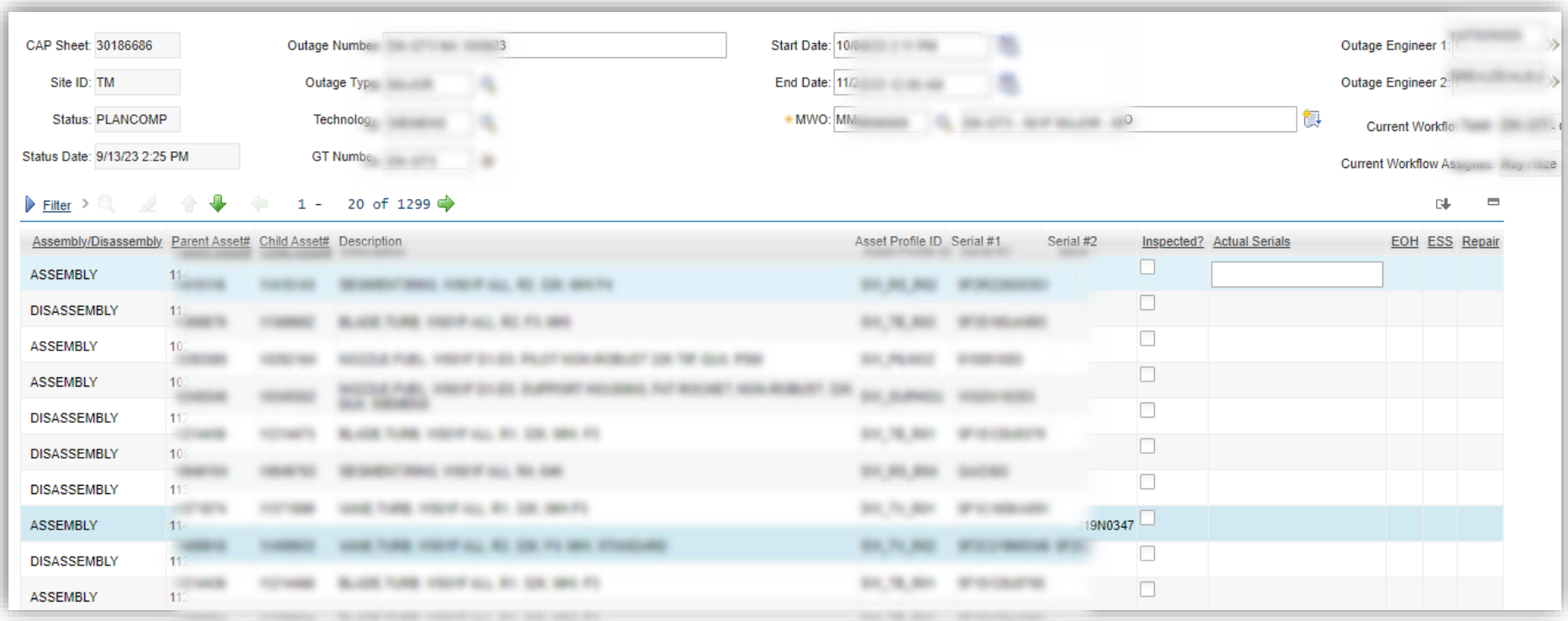
Capsheet Overview

- Nowadays:
  - Much more civilized.
  - Outage Inspections, galore!



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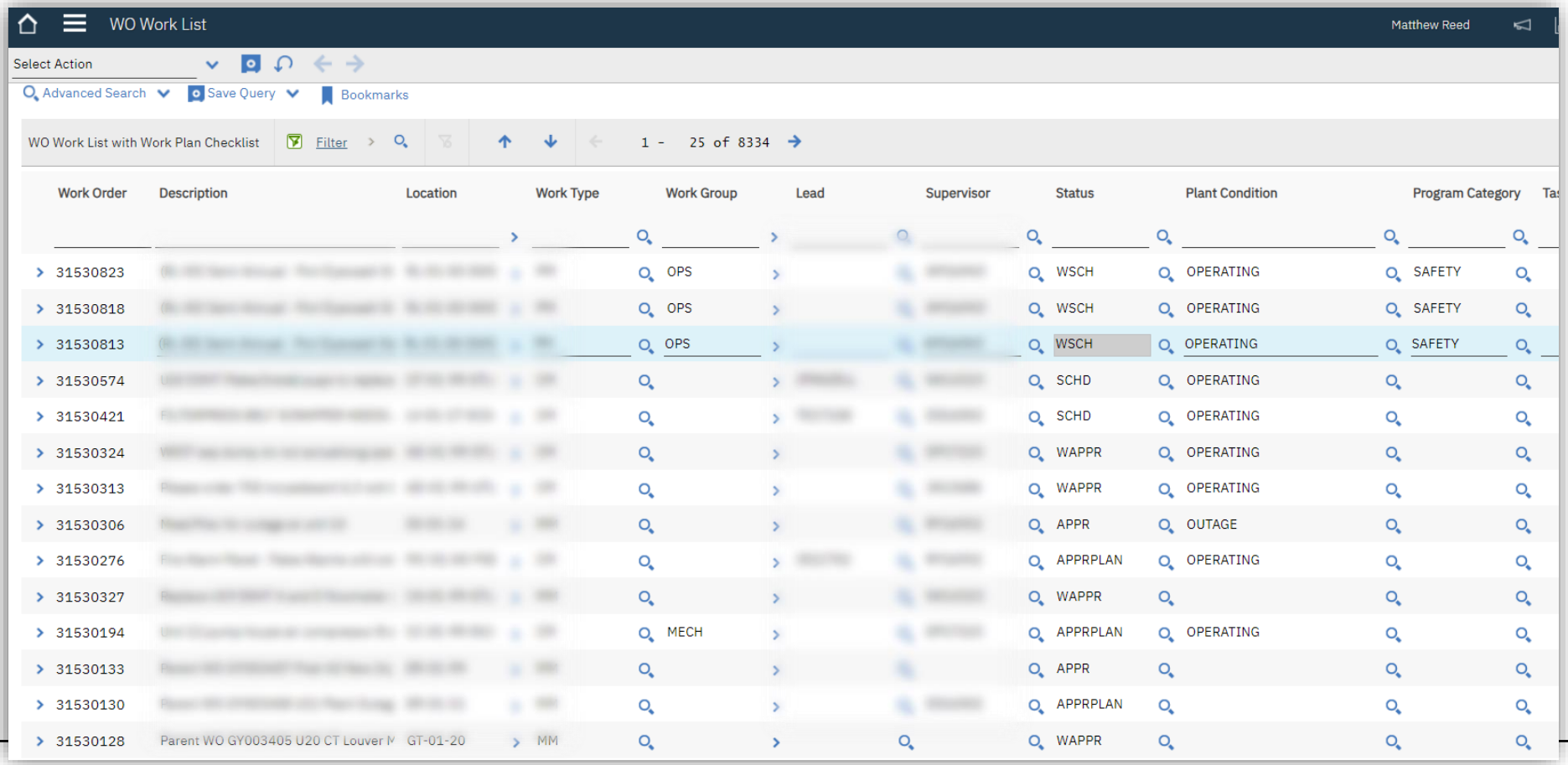
WO Work List

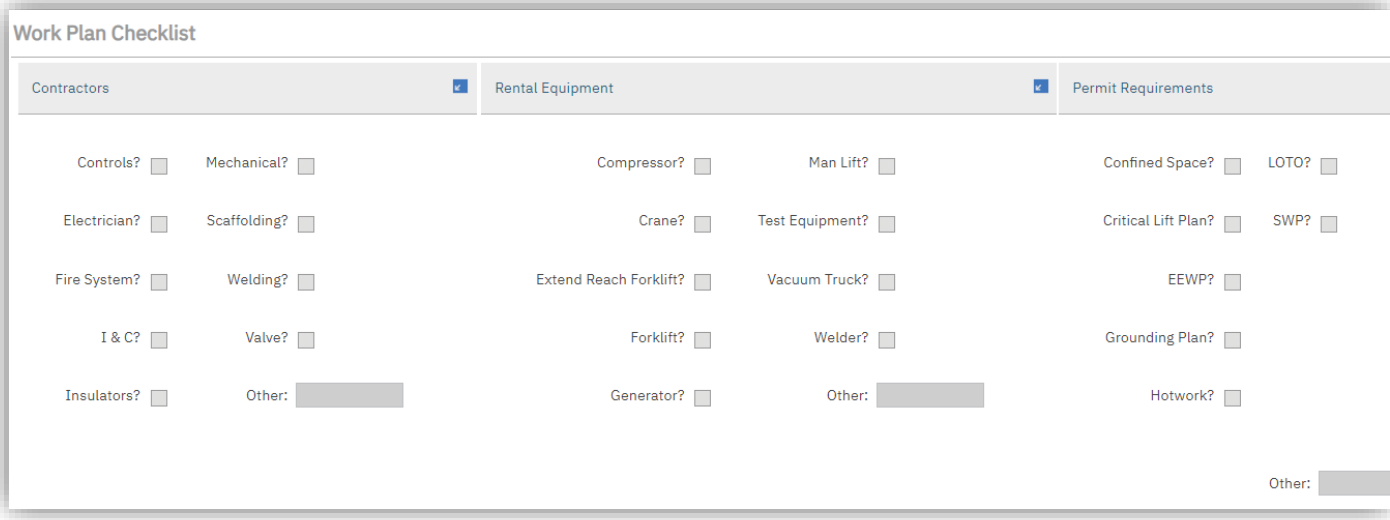
WO Work List

- Users requested a way to edit multiple work orders from a list screen.
- The WO Work List has 50 columns, most of them editable.
- Director of Work Management calls it “life changing” for the users.

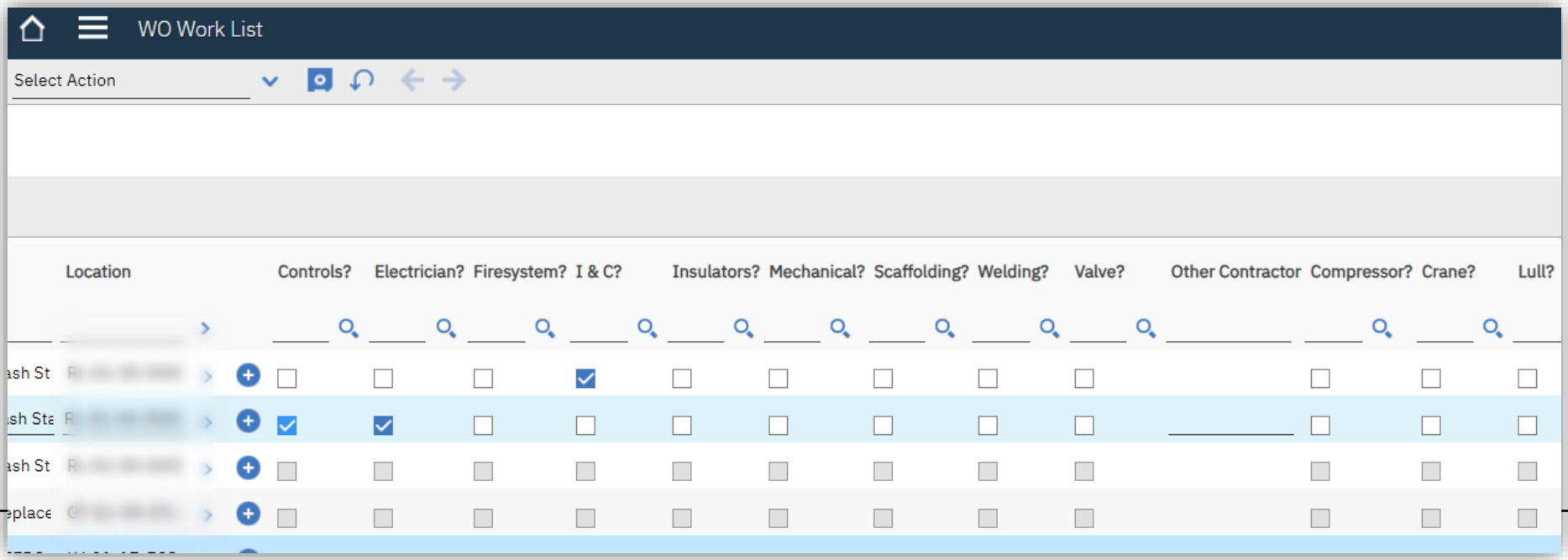


WO Work List

You can edit one at a time on the WO



Or edit/search multiple WO's at a time from the WO Work List



Questions

Thank You!

Calpine Maximo Team in alphabetical order:

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Richard Palmer
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